

precise value, appropriate to each real-time event that acts on the chip cards, thus limiting and controlling the rights pertaining to these events.

The information given by the register R is thus capable of checking a piece of information, for example at the microprocessor or any other entity external to the software architecture, on the identification of the zone of the software architecture concerned by the application being executed.

The information given by the register R enables the checking of the zone of the memory of the chip card in which the application is entitled to come into action, namely the memory space that it is permitted to access. Thus, any user attempting to make fraudulent use of the operating system in order to recover data pertaining to a particular application is refused access to this data. Indeed, the bits of the state register in this case are different from the bits that might correspond to a call DCALL of the particular application in question. The addresses which it is sought to access and the bits of the register R, sent by the microprocessor by means of the link 230, are compared with each other in the controller of access to the memory 220. Should it be the case that the addresses of the memory that it is sought to access are not addresses belonging to the authorized field of the last application having performed a DCALL type call, then a piece of information on illegal access prohibits access to these memories.

The device according to the invention thus provides great security in the sense that data elements destined for one application cannot be used by another application.

A second register CS makes it possible to retain in memory a code proper to the applications that were active at the last call instruction DCALL sent by the current application, namely those that are to be performed following the current application.

When the current application has finished being executed, a return instruction DRET is executed by the microprocessor and the data elements contained in the second register CS enable a return to the application that was being performed previously and had been activated by a call DCALL. The register R is also updated.

The second register CS cannot be directly accessed by the applications of the chip card. This is in order to ensure the integrity of the device when it is put into operation during the execution of a return instruction DRET.

When the execution of the current application is finished, the bits of the register R assume a value specific to the application that was being performed previously, restoring its rights and limits in terms of memory access.

- 5        The memory zone access device according to the invention gives a high level of security in terms of access to the different zones of the memory, for a software architecture such as the one shown in Figure 1.

WHAT IS CLAIMED IS :

1. A device for access to applications of a chip card comprising a microprocessor associated with an operating system working with a set of instructions, a program memory and a battery of applications in a memory of the chip card, wherein the device comprises:

- a register of the microprocessor to store a code, on several check bits, proper to an entity brought into play,

- a call instruction and an instruction for the return of the set of instructions to instantaneously and automatically update the register during the action by a new entity,

- a checking device for the checking, as a function of the check bits, of the authorized nature of the access to the zones of the memory of the chip card by the new entity that is called or takes action in the chip card,

- a first link to transmit the check bits from the microprocessor to the checking device.

2. A device for access to applications of a chip card according to claim 1, comprising a second register to store a code proper to the applications active at the time of the last call instruction sent.

3. A device for access to applications of a chip card according to one of the claims 1 or 2, wherein the entity that is called or takes action in the chip card is an application of the battery of applications.

4. A device for access to applications of a chip card according to one of the claims 1 or 2, wherein the entity is a hardware event.